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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,107	09/27/2004	Piero Baglioni	P-7235-US	1297
49443	7590	08/04/2006	EXAMINER	
PEARL COHEN ZEDEK, LLP 1500 BROADWAY 12TH FLOOR NEW YORK, NY 10036			VANOY, TIMOTHY C	
			ART UNIT	PAPER NUMBER
			1754	
DATE MAILED: 08/04/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/509,107

Applicant(s)

BAGLIONI ET AL.

Examiner

Timothy C. Vanoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8 and 9 is/are allowed.
- 6) ☒ Claim(s) 1-7 and 10-20 is/are rejected.
- 7) ☒ Claim(s) 2, 4 and 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>09/27/2004</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

a) In the IDS filed on 09/27/2004, the reference to the European patent application EP 0540674 A1 is in error and therefore has not been considered. The correct citation of EP 0450 674 A1 is supplied on a PTO-892.

### ***Specification***

- a) The title of the invention is objected to because it is too long.
- b) The abstract is objected to because the last sentence of the abstract has been cut off evidently during a photo-copying process. The applicants are required to supply a new abstract with this last, cut-off sentence being supplied.

### ***Claim Objections***

- a) In claim 2, "or" should be inserted between "cobalt," and "nickel".
- b) In claim 4, "or" should be inserted between "nitrate," and "acetate".
- c) In claim 5, "or" should be inserted between "Ni(NO<sub>3</sub>)<sub>2</sub>," and "FeCl<sub>3</sub>".

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 2, 6, 12, 13, 14, 16, 17, 18, 19 and 20 are rejected under 35

U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) In claim 1 line 2, the term “nano- micro-particles” is vague and indefinite. Are the “nano- micro-particles” nanoparticles or micrometer sized particles? The applicants are required to amend the claim to clarify this.

b) In claim 1 step (a), the phrase “double exchange reaction” is vague and indefinite because it is not clear what the difference is between this “double exchange reaction” and a “reaction” between the metal compound and the alkaline hydroxide. The applicants may want to consider deleting “double exchange” from the claim language because the reaction appears to simply be a simple chemical reaction.

c) Claims 16, 18, 19 and 20 provides for the use of oxides, hydroxides and dispersions, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

d) Claims 1, 2, 6, 12, 13, 14, 16, 17 and 18 claim metal hydroxides (evidently, as a product of the claimed process), however it is not clear if any metal hydroxides are actually being prepared as set forth in the applicants' claims because the applicants'

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claims call for calcining the metal hydroxide and it is expected that this calcination would convert the metal hydroxide into a metal oxide.

e) In claims 16 and 18-20, the term "treatment" is vague and indefinite because it is not clear what the treatment involves or how the ceramic surfaces, textile products or paper materials are being treated.

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 16, 18, 19 and 20 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-7 and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by U. S. Patent 5,104,832 to Michel et al.

Example 1 in U. S. Patent 5,104,832 describes a process for making zirconium dioxide nanoparticles having a crystallite size ranging from 20 to 30 nm. by providing a solution comprising  $ZrOCl_2$  and adding sodium hydroxide solution so as to precipitate a product. This precipitated product was filtered, washed free of chlorine and/or sodium, dried and calcined at 650 to 750 °C to produce a product comprising zirconium dioxide.

Claims 1-7 and 10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by European Patent Application EP 0 251 538 A2 to Wusirika.

Claim 4 in EP 0 251 538 A2 describes a method for making a composition comprising zirconia and having a particle size ranging from 0.05 to 0.2 microns comprising providing an aqueous solution comprising zirconyl chloride; heating the solution to a temperature of about 95 °C; introducing a sufficient amount of base into the solution to precipitate all the metal in the form of hydroxide; recovering the zirconium hydroxide, and calcining the recovered materials at a temperature of at least 400 °C.

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Claims 1-4, 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by European Patent Application No. EP 0 450 674 A1 to Castellano et al.

Pg. 2 Ins. 31-44 describes a method for preparing mixed oxides of zirconium and yttrium [ $\text{ZrO}_2(\text{Y}_2\text{O}_3)$ ] comprising:

providing an aqueous solution of zirconium and yttrium carboxylates and adding an organic solvent to it;

adjusting the pH of the solution to a value ranging from 5 to 7 by adding a base (such as sodium hydroxide: please also see pg. 3 Ins. 7-11) to the solution so as to precipitate a metal compound, and

calcining the metal compound at high temperatures to evidently convert it into mixed oxides of zirconium and yttrium.

Pg. 3 Ins. 36-46 reports that when the precipitation is complete, the powder is separated from the mixture by filtration. The powder is washed and the powder is calcined at 900 to 1,400 °C so as to produce particles having an average size smaller than 1 micrometer.

Claims 12-20 are rejected under 35 U.S.C. 102(e) as being anticipated by U. S. Patent 6,527,843 B1 to Zaima et al.

Col. 5 Ins. 36-43 and col. 6 Ins. 1-2 describes nanometer-sized metal oxide particles, such as titanium oxide, zirconium oxide, iron oxide and/or zinc oxide, which are dispersed in water to provide a dispersion. Col. 2 Ins. 36-37 sets forth that the composition has utility as a coloring material for ink.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The person having ordinary skill in the art has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).



Claims 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent 5,292,591 to Teyssie et al. in view of U. S. Patent 6,162,530 to Xiao et al.

Col. 1 Ins. 15-21 in U. S. Patent 5,292,591 discloses that a dispersion of titania in water can be used as hydrophilic coating layer on a substrate such as polyester.

The difference between the applicants' claims and U. S. Patent 5,292,591 is that applicants' claims call for the presence of nanoparticles of metal oxide in the dispersion (whereas col. 1 Ins. 15-21 in U. S. Patent 5,292,591 does not expressly recite that the titania is in the form of nanoparticles).

Col. 1 Ins. 39-44 in U. S. Patent 6,162,530 discloses that nanostructured materials possess improved chemical and physical properties as compared to their micron-sized grain counterparts of the same chemical composition.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process described in col. 1 Ins. 15-21 in U. S. Patent 5,292,591 by preferentially using nanoparticles of titania in the dispersion, in the manner required by the applicants' claims, because col. 1 Ins. 39-44 in U. S. Patent 6,162,530 discloses that nanoparticles have improved chemical and physical properties over their micron-sized grain counterparts of the same chemical composition.

Claims 8 and 9 have not been rejected under either 35USC102 or 35USC103 because none of the references of record teach or suggest the limitations in these claims.

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The following references are made of record:

U. S. Patent 6,670,291 B1 disclosing various metal oxides in the form of dispersions as part of a coating agent (please see col. 14 Ins. 39 to 67), and

U. S. Patent 6,914,019 B2 disclosing a clothing element containing a coating made of a titanium compound (please see the abstract).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 571-272-8158. The examiner can normally be reached on Mon-Fri 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Primary Examiner  
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